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10/726,075	12/01/2003	Hong-Ming Tai	TI-36524	4776
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TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			EXAMINER NGUYEN, PHILLIP H	
			ART UNIT	PAPER NUMBER
			2191	
			NOTIFICATION DATE	DELIVERY MODE
			12/27/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/726,075

Applicant(s)

TAI ET AL.

Examiner

Phillip H. Nguyen

Art Unit

2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-28 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed 10/9/2007.
2. Claims 1-6 and 8-28 remain pending and have been considered below.

Response to Amendment

3. The rejection to claims 1, 11, 12, 16 and 18-21 under 35 U.S.C. 102(e) is withdrawn in view of Applicants' amendment.

Response to Arguments

Applicant's arguments with respect to claims 1-6, 8-28 have been considered but are moot in view of the new ground(s) of rejection.

Applicant asserts on page 9 of the amendment that Aikawa fails to teach *sending a NAK to download firmware for use by and MCU for a period of time, then continuing to respond with NAKs and to download the firmware, and then executing the firmware in response to a request signal thereafter.*

Examiner respectfully disagrees with all the allegations as argued. Aikawa teaches "***the USB device sends NAK signals unless some bulk data is ready to be transferred by the device...the device which keeps sending a NAK signal...***" A person with an ordinary skill in the art can recognize that NAK signal is sent continuously for bulk data to be downloaded. Furthermore, the downloaded data must

be executed in order to fulfill the purpose of downloading, updating, upgrading, or installing data (i.e. firmware) into the USB device.

Applicant further asserts on page 9 of the amendment that Falik fails to cure the deficiencies of Aikawa with respect to claims 1 and 16, having been cited merely for a controller generating a pointer and a byte counter.

Examiner respectfully disagrees with the allegation as argued. Falik teaches "**sending data from an USB endpoint to a USB host**" (see col. 2, lines 13-14). Falik also teaches "**the controller generates in the pointer memory a pointer to the first memory, sends the data packet pointed to by the pointer...**" (see col. 2, lines 25-26). Furthermore, Falik teaches "**A byte counter keeps track of the number of bytes that are transferred (i.e. downloaded)**" (see at least col.6, line 16). A person with an ordinary skill in the art can recognize that Falik's invention is an analogous art for sending data between a USB endpoint device and a USB host using USB cable. It is also clear that Falik uses pointer for tracking downloaded data.

Claim Objections

4. Claim 8 is objected to because of the following informalities: Claim 8 should depend on claim 6. Appropriate correction is required.

Allowable Subject Matter

5. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5, 11-16 and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aikawa et al. (United States Patent No.: US 6,898,751 B2), in view of Kitagawa et al. (United States Patent No.: US 6,357,021 B1).

As per claims 1, 16 and 22:

Aikawa teaches:

- connecting to a host (see at least col. 2, lines 47-48 "***a single master (USB host) who communicates with one or more slave devices (USB devices)***");
- waiting for a first request signal from the host (see at least col. 2, lines 53-55 "***...the host controller bulk data request signals (IN tokens) to the USB device(s)***")'

- responding to the first request signal with a negative acknowledgement (NAK)
(see at least col. 1, lines 20-23 "**A NAK signal/packet is sent to indicate that there is an error in the received data or the receiving unit is busy and cannot accept data until later time or a transmitting device cannot transmit data**");
- initiating downloading the device program from the data source and continuing to download the device program for a predetermined time period based on the request signal (see at least col. 1, lines 57-58 "**USB enables bi-directional isochronous and asynchronous data transfer...**"; also see col. 2, lines 6-8 "**Isochronous transfers are periodic data transfers at a constant rate (e.g. 1 ms). Data transfer is correlated in time between a sender and receiver.**");
and
- in response to a subsequent request signal from the host,
 - o if the device program is not completely downloaded, sending a subsequently NAK and continuing to download the device program (see at least col. 2, line 59 "**...device which keeps sending a NAK signal...**"),
and
 - o if the device program is completely downloaded, responding to the subsequent request signal by executing the device program (**It is inherent because the downloaded data (i.e. firmware) must be executed in order to fulfill the purpose of downloading, updating, upgrading, or installing data (i.e. firmware) into the USB device**).

Aikawa does not explicitly teach:

- in response to device power up or to device reset.

However, Kitagawa teaches analogous method:

- in response to device power up or to device reset (see at least col. 4, lines 24-25

"In a power on/reset...receives a power on or a reset...").

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to recognize downloading firmware during the power up or reset is well known to the art and to modify Aikawa's approach to allow the installation of firmware process starts during the power on as taught in Kitagawa's approach. One would have been motivated to modify because it allows the device to have a newer version firmware to increase the device's performance.

As per claim 2:

Aikawa further teaches:

- the data source comprising non-volatile memory (see at least col. 4, line 59 "***non-volatile storage***").

As per claim 3:

Aikawa in combination with Kitagawa teach all the limitations of the base claim as outlined above. Furthermore Kitagawa further teaches:

- the non-volatile memory is at least one of an Electrically Erasable Programmable Read Only Memory (EEPROM) and a flash memory (see at least col. 3, line 36 "**...EEPROM...**").

As per claim 4:

Aikawa in combination with Kitagawa teach all the limitations of the base claim as outlined above. Furthermore Kitagawa further teaches:

- reading a signature from the non-volatile memory and validating the signature prior to connecting to the host (see at least col. 4, lines 25-36 "**...initializes hardware and initializes variables...determines whether the firmware stored in the updatable part 220 is valid...**").

As per claim 5:

Aikawa further teaches:

- reading descriptor information from the non-volatile memory prior to connecting to the host (see at least col. 2, lines 61-63 "**Polling occurs when an ED is enabled, a TD is active or if the TD is loaded and activated...**").

As per claim 11:

Aikawa further teaches:

- the host is a USB host and the device is a USB device (at least col. 2, lines 47-48
"a single master (USB host) who communicates with one or more slave devices (USB devices)").

As per claim 12:

Aikawa further teaches:

- the predetermined time period is monitored by a timer (***It is inherent in Aikawa in order to calculate the data transfer rate*** see col. 2, line 7).

As per claims 13 and 14:

Aikawa further teaches:

- determining and downloading a number of device program data blocks to be downloaded based on the predetermined time period (at least col. 2, lines 6-8
"Isochronous transfers are periodic data transfers at a constant rate (e.g. 1 ms). Data transfer is correlated in time between a sender and receiver").

As per claim 15:

Aikawa further teaches:

- setting a loop counter based on the number of data blocks to be downloaded (see at least col. 5, lines 51-53 ***"a historical range of values (or a single value) is built that records the average number of times a device NAKs before successfully transferring or receiving data"***).

As per claim 18:

Aikawa further teaches:

- sending a negative acknowledgement (NAK) to the host to intentionally postpone the transmission of the response to the request signal (see at least col. 1, lines 20-23 "**A NAK signal/packet is sent to indicate that there is an error in the received data or the receiving unit is busy and cannot accept data until later time or a transmitting device cannot transmit data**").

As per claim 19:

Aikawa discloses:

- determining the signal request type and setting the predetermined time period accordingly (**It is inherent in order to identify which type of data transfer since there are four types of data transfers between a host controller and peripheral units** (see col. 2, lines 1-3).

As per claim 20:

Aikawa further teaches:

- determining a number of data blocks to be downloaded based on the predetermined time period (see at least col. 2, lines 6-8 "**isochronous transfers are periodic data transfers at a constant rate (e.g. 1ms)...**").

As per claim 21:

Aikawa further teaches:

- the number of data blocks to be downloaded being further based on at least one of a download data rate and a block size (see at least col. 2, line 6-8

"isochronous transfers are periodic data transfers at a constant rate (e.g. 1ms)...").

1. Claims 6, 8-9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aikawa et al. (United States Patent No.: US 6,898,751 B2), in view of Falik et al. (United States Patent No.: 6,145,045).

As per claim 6:

Aikawa does not explicitly disclose:

- setting a pointer for tracking data downloaded from the data source.

However, Falik discloses:

- setting a pointer for tracking data downloaded from the data source (see at least col. 2, lines 25-26 ***"the controller generates in the pointer memory a pointer to the first memory, sends the data packet pointed to by the pointer..."***).

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Aikawa's approach to include a pointer memory is configured to contain a pointer corresponding to a memory. One would have been

motivated to include a pointer memory in Aikawa's approach for tracking data packet downloaded to the host.

As per claims 8 and 17:

Aikawa does not explicitly disclose:

- updating a download pointer each time the predetermine time period is completed.

However, Falik discloses:

- updating a download pointer each time the predetermine time period is completed (see at least col. 8, line 50 "...**pointer to be incremented**").

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Aikawa's approach to include a pointer memory is configured to contain a pointer corresponding to a memory. One would have been motivated to include a pointer memory in Aikawa's approach for tracking data packet downloaded to the host.

As per claim 9:

Falik discloses:

- the predetermined time period is a first time period for a data request signal, and a second time period for a status request signal (***the predetermined time period between data packet being requested to be transferred***).

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip H. Nguyen whose telephone number is (571) 270-1070. The examiner can normally be reached on Monday - Thursday 10:00 AM - 3:00 PM EST.

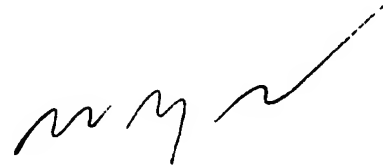
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/726,075
Art Unit: 2191

Page 13

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PN
12/15/2007

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to read 'WZ' followed by a long, sweeping horizontal stroke.

WEI ZHEN
SUPERVISORY PATENT EXAMINER